



GENERAL CURRICULUM STANDARDS FOR KENTUCKY LICENSED COMMERICAL DRIVING SCHOOLS

Date: June 2010

Approved by:

State Board for Proprietary Education
Kentucky State Police – Driver Testing Branch

GENERAL CURRICULUM STANDARDS

OVERVIEW

The Kentucky General Curriculum Standards (GCS) provide the basic instructional program content for training tractor-trailer drivers by licensed commercial driver training schools in the Commonwealth of Kentucky. This curriculum incorporates topics of instruction as listed in 49 CFR Part 380, subpart B and implements those requirements stated in KRS 332.095.

This section provides an overview of the curriculum topical contents; instructional sequence, objectives and methodology; and the minimum number of hours necessary for students to achieve the basic proficiency level outlined in the GCS.

NOTE: This curriculum is designed for students who hold a valid automobile driver's license and are enrolled in a licensed Kentucky commercial driving license training school.

Students who have had some former experience driving a commercial motor vehicle (CMV) and can provide documentation to this fact may *waive* certain portions of the curriculum as it pertains to observation time and classroom instruction.

Each student must receive the minimum designated behind the wheel (BTW) driving time (range and road/street) set forth in this curriculum. **NOTE:** No credit shall be given to any student that transfers from one licensed Kentucky commercial driving license (CDL) school to another Kentucky licensed CDL school unless approved by the Kentucky Board for Proprietary Education.

SAFETY

The safety of all road users is the priority and the basis for the instruction contained in this curriculum. The instructor in operational charge of a vehicle must ensure the following.

1. The vehicle is safe for the learning task to be demonstrated/performed.
2. The student has a level of training and competency to perform the task safely.
3. All vehicle occupants must wear a seat belt when the vehicle is in operation.
4. All traffic laws and safe vehicle operating practices must be obeyed at all times.
5. Each student understands the recommended process when being stopped by a law enforcement agency.

ORGANIZATION

This curriculum is divided into sections and unit syllabi lesson outlines. There are five (5) instructional sections with each section containing one or more units of instruction

divided into classroom, range and/or road. Each unit has a unit syllabus which describes instructional content/topics and student performance and knowledge objectives.

NOTE: Curriculum units may be presented in any order that facilitates student learning and allows for effective use of school resources.

INSTRUCTOR QUALIFICATION

Licensed CDL instructors, at a minimum, shall meet the following requirements:

- Successfully complete the written examination and skills examination administered by the Kentucky State Police (201 KAR 40:070, Section 1(5)).
- Obtain CDL School Instructor License issued by the Kentucky Board for Proprietary Education (201 KAR 40:070, Section 1)
- Complete State and Criminal History Background Checks (201 KAR 40:070, Section 2)
- Meet applicable general requirements of 49 CFR 380 Subpart C – LCV Driver Instructor Requirements.

SECTIONS

Each section has different objectives and skill sets to be learned and operating proficiency to be acquired. The five sections are:

1. **Basic Operation** – This section covers the interaction between students and the vehicle. It is intended to teach students to control the motion and direction of the vehicle, ensure it is in proper operating condition, and the tractor and trailer are correctly coupled.
2. **Safe Operating Practice** – This section covers the operational interaction between the student and vehicle on the range and in highway traffic environment. It is intended to teach students to apply their basic operating skills in a way that ensures their own safety and that of other road users.
3. **Advanced Operating Practices** – This section covers the higher-order basic skills needed to cope with the hazards of the roadway-traffic environment. The section's purpose is to develop perceptual skills needed to recognize the potential hazard as well as the manipulative skills needed to handle the vehicle in an emergency situation or condition.
4. **Vehicle Maintenance** – This section describes how the various components of the vehicle work (operate) so students can recognize a malfunction or safety hazard before it causes serious damage or an accident. Its purpose is to teach students how to perform routine service functions and simple maintenance tasks and recognize when the vehicle needs repair.

5. **Non-Driving Activities** – This section covers activities not directly related to the vehicle or its operation. Its purpose is to inform students how to carry out these activities in a way that protects their safety and the safety of the vehicle, cargo and other motorists.

NOTE: Under this revised curriculum, prior Section 6, Independent Study, is no longer a required portion of the curriculum. To compensate, additional classroom hours and yard and on-the-road behind-the-wheel (BTW) and student observation hours have been adjusted.

UNIT LESSON SYLLABI

A unit is a set of instructional activities under any one of the five sections described prior. The instructional activities in the lesson syllabi may consist of classroom, range, and/or street instruction settings.

- **Classroom Instruction** – Classroom instruction occurs indoors, accomplished by instructional aids that allow large numbers of students to be taught effectively at one time. (30 student maximum per instructor)
- **Range Instruction** – Range instruction occurs in an off-street “driving range or lot” where students are taught basic operating and maneuvering skills using a tractor-trailer rig free from hazard of cars or other road users. (6 students maximum per instructor)
- **Street or Road Instruction** – Street instruction is instruction on vehicle operation and driver proficiency development that occurs under actual highway traffic conditions. (3 students maximum per instructor)

The curriculum outline that follows this section contains an overview of the unit lesson syllabi.

COURSE OUTLINE

SECTION 1 – BASIC OPERATION

Purpose – Introduces students to curriculum components of the tractor-trailer and basic maneuvers. At the end of this section, students will have acquired the basic skill and knowledge to operate a tractor-trailer combination vehicle to a level of proficiency to begin street and over-the-road (OTR) driving instruction and skill development. There are nine unit instruction syllabi for this section.

Unit 1.1 Orientation

This unit provides an overview of the course content and instructional requirements relating to tractor-trailer driving and student responsibilities.

Each licensed school must devote a minimum of three (3) hours of orientation instruction to school regulations, safety, conduct, performance expectations, and curriculum overview.

Unit 1.2 Control Systems

This unit introduces students to the function, operation, and meaning of in-cab instruments and controls such as the gauges, gear shift, tachometer, air brake controller, etc. Instructors are responsible to point out controls, instruments and their operation during instruction and demonstration.

Each licensed school must devote a minimum of three (3) hours of instruction in vehicle controls and vehicle system monitoring devices.

Unit 1.3 Vehicle Inspections

This unit introduces students to the importance of systematic vehicle inspections and to develop the knowledge and skills necessary to perform a comprehensive pre-trip vehicle inspection. It is the driver's obligation to public and other road users to ensure his/her vehicle is in safe operating condition before taking it out on the road.

Each licensed school must devote a minimum of ten (10) hours of instruction in systematic vehicle inspection, including inspections regularly performed prior to on-street driving sessions.

Unit 1.4 Basic Control

This unit provides an introduction to basic vehicle operation. Through instructor demonstration, the students are shown the basics of starting, stopping and backing the vehicle. Students gain initial practice in basic control on yard. Instructors must ensure the student has the basic skills and understanding of how the vehicle operates before any BTW street or OTR driving may take place.

Each licensed school must devote a minimum of five (5) hours to instruction in basic control of the vehicle.

Unit 1.5 Shifting

This unit provides an introduction to basic gear shifting procedures and shift patterns for most common tractor transmissions. BTW on the range and street shall be provided to develop shifting skills which includes coordination of hands, feet, sight, and hearing.

Each licensed school must devote a minimum of three (3) hours to instruction in gear shifting techniques.

Unit 1.6 Backing

This unit provides classroom lecture, discussion, and BTW practice) on the methods, concepts, and proper techniques for safely backing a tractor-trailer vehicle.

Each licensed school must devote a minimum of 24 hours to instruction in backing techniques. Each student must have 10 hours of documented BTW time for skill practice and proficiency development.

Unit 1.7 Coupling and Uncoupling

This unit provides students with classroom instruction, demonstration, and practice on those steps for safely coupling and uncoupling a tractor-trailer. The instructor shall explain and demonstrate coupling/uncoupling procedure steps and shall supervise student practice for development of skill proficiency.

NOTE: Federal Motor Carrier Safety Regulations require all drivers have instruction in coupling and uncoupling procedures.

Each licensed school **must** devote a minimum of four (4) hours to instruction in coupling and uncoupling procedures. It is recommended that students perform at least two or three actual coupling and uncoupling of the tractor and trailer during their training.

Unit 1.8 Proficiency Development: Basic Control

This unit is designed to provide the student the time to practice and develop his/her skills in the material introduced in units 1.2 through 1.7.

Each licensed school must devote a minimum of 36 hours to the development of the students' proficiency in vehicle control skills. The required time may be reduced for individual students who meet documented standards, provided the time saved is provided to students failing to meet the standard within allocated hours, as described in the instructional methods section.

Unit 1.9 CDL Permit Test Preparation

This unit is designed to provide the student instruction on the requirements to obtain a Kentucky CDL Drivers License and the knowledge requirements to pass the written test to obtain their CDL permit.

Each licensed school must devote a minimum of 10 hours of instruction on the laws, regulations, testing and conditions for obtaining a Kentucky CDL permit and license.

SECTION 2 – SAFE OPERATING PRACTICES

Purpose – This section provides students instruction and proficiency development in safe vehicle operating techniques in highway traffic.

Unit 2.1 Visual Search

This unit provides the student instruction and practice on the principles of visual search, use of mirrors and practice in use of visual search techniques while driving the vehicle.

Each licensed school must devote a minimum of five (5) hours of instruction on visual search (use of mirrors) techniques.

Unit 2.2 Communication

This unit provides the student instruction and driving practice on communication, e.g., turn signals, use of horn, etc. to other drivers traveling the roadway.

Each licensed school must devote a minimum of three (3) hours of instruction on signaling your intentions and communicating your presence to other vehicles.

Unit 2.3 Speed Management

This unit provides the student instruction and driving practice on speed management principles, e.g., maintaining safe speed while operating the vehicle under various road and surface conditions, stopping conditions, roadway work zones and speed on downgrades.

Each licensed school must devote a minimum of two (2) hours of instruction on speed management principles.

Unit 2.4 Space Management

This unit provides the student instruction and driving practice on in space management techniques

Each licensed school must devote a minimum of three hours (3) of instruction on space management principles.

Unit 2.5 Night Operation

This unit provides the student instruction and driving practice on inspection, preparation, and actual night driving operation.

Each licensed school must devote a minimum of 11 hours of instruction in night operation principles.

Unit 2.6 Extreme Driving Conditions

This unit provides the student instruction basic instruction on the safety principles and techniques on driving in extreme conditions such as hot or cold weather, fog or stormy conditions, railroad crossings, and mountains.

Each licensed school must devote a minimum of one (1) hour of instruction on extreme driving conditions.

Unit 2.7 Proficiency Development: Safe Operating Procedures

This unit provides the student opportunity to practice and develop, with BTW driving and observation periods, the vehicle handling skills learned in unit 1.4, *Basic Control*, 1.5, *Shifting*, 1.8, *Proficiency Development-Basic Control*, and the safe operating practices learned in units 2.1 through 2.6. Instructors shall monitor and document student performance for performing basic highway traffic maneuvers of lane changing, passing, merging, turning and parking using appropriate driving procedures.

Each licensed school must devote a minimum of 24 hours of instruction, BTW practice and structured observation and critique in safe operating procedures.

SECTION 3 – ADVANCED OPERATING PRACTICES

Purpose – This section is designed to enable students to acquire the advanced basic skills needed to recognize and respond to common road hazards and emergencies.

Unit 3.1 Hazard Perception

This unit provides the student instruction and street practice on the principles of recognizing potential hazards early enough to prevent them from becoming emergencies. BTW driving and observations are to include application of hazard recognition principles.

Each licensed school must devote a minimum of seven (7) hours of instruction on hazard perception techniques and awareness.

Unit 3.2 Emergency Maneuvers

This unit provides the student instruction on emergency braking techniques, evasive actions and responses to other emergencies.

Each licensed school must devote a minimum of five (5) hours of instruction in emergency maneuvers, including brake failures, front wheel tire blowout, emergency stops, and evasive maneuvers.

SECTION 4 – VEHICLE MAINTENANCE

Purpose – This unit provides the student the knowledge to recognize cause(s) of vehicle malfunctions and to perform simple maintenance and emergency repairs.

Unit 4.1 Vehicle Systems

This unit provides the student instruction on function and operation of all key vehicle systems, e.g., engine, engine auxiliary systems, brakes, drive train, coupling systems, suspension, etc. for safe and efficient vehicle operating condition.

Each licensed school must devote a minimum of three (3) hours of instruction in vehicle operating systems and components.

Unit 4.2 Preventive Maintenance and Servicing

This unit provides the student instruction on basic vehicle servicing tasks including checking engine fluids, changing fuses, checking tire inflation, draining air tanks, adjusting brakes, and applicable Federal Motor Carrier Safety Regulations (FMCSR). Each licensed school must devote a minimum of three (3) hours of instruction and application in basic vehicle servicing and preventive maintenance.

Unit 4.3 Diagnosing and Reporting Malfunctions

This unit provides the student instruction on identification and response to vehicle malfunctions and practice in performing emergency starting procedures.

Each licensed school must devote a minimum of two (2) hours of instruction and application in basic vehicle servicing and preventive maintenance.

SECTION 5 – NON-VEHICLE ACTIVITIES

Purpose – This section introduces students to those activities which must be carried out that are not directly related to vehicle operations that professional drivers must perform such as logkeeping, trip planning, and driver safety and health.

Unit 5.1 Hours of Service Requirements

This unit provides the student instruction on permissible hours of on duty driving, rest periods, and other requirements of Federal Hours of Service Regulations. Students gain practice in use and completion of driver's duty status record of time (logkeeping).

Each licensed school must devote a minimum of four (4) hours to instruction in FMCSA, Part 395, *Hours of Service Regulations*, for drivers.

Unit 5.2 Accident Procedures

This unit provides the student instruction on basic procedures to follow for handling the scene of an accident, reporting accidents, rules and regulations related to accidents. Also, included is instruction in use of vehicle fire extinguisher and fire fighting techniques related to truck fires.

Each licensed school must devote a minimum of two (2) hours to instruction in accident and emergency procedures.

Unit 5.3 Personal Health and Safety

This unit provides the student instruction on physical requirements for driving an interstate vehicle, medical examination and certification. Topics discussed include health maintenance (wellness), diet, exercise, alcohol and drug use effects, and fatigue avoidance. Common personal protective equipment (PPE) and vehicle safety equipment are also identified and discussed.

Each licensed school must devote a minimum of two (2) hours of instruction in personal health and safety.

Unit 5.4 Trip Planning

This unit provides the student instruction on the importance and requirements for planning trip, Federal and State requirements for permits, vehicle weight and size limitations, etc. Students perform practical exercise in trip planning.

Each licensed school must devote a minimum of four (4) hours of instruction to trip planning techniques and practical exercise.

MINIMUM CURRICULUM REQUIREMENTS

The unit syllabi in this curriculum outline are mandatory for all licensed CDL schools operating in the Commonwealth of Kentucky. The units may be taught in any sequence that leads to effective learning and allows the school to make the best use of its equipment, staff and facilities. Instructional settings include classroom, range or lot, and highway or street. Instructional methods are comprised of the following.

Presentation or Lecture

Presentation, lecture or a combination of both is teaching or presenting information in a classroom setting. Classroom presentations and lectures may be the most demanding form of instruction for the instructor. Instructors have the responsibility for presenting curriculum information thoroughly and accurately. Instructors are expected to make the presentation of information as interactive as possible by calling on students to react to what is presented, contribute their own experiences, and discuss the implications of what they are presented with fellow students.

Instructors are encouraged to supplement presentations with audio-visual materials such as videotape, DVDs, overheads, films, etc which supplement and convey concepts presented.

Licensee schools are encouraged to develop presentation or lesson plan outlines to ensure required items are being presented by their instructors and help ensure consistency of instructional quality and content.

Demonstration

When students are called on to perform an activity for the first time, they must be given a demonstration by the instructor of the correct way to perform the activity or skill. Demonstrations should be thorough, but concise, so students have the required time for practice to gain the minimum required level of proficiency.

All student BTW activity must first be demonstrated by an instructor. One brief demonstration of each type of activity may be performed within the hours allocated to BTW time in both range and street instruction.

Student Practice

Much of curriculum hours consist of student practice of the objective skills and proficiencies outlined in each unit syllabus. The majority of this practice is BTW of the truck, either on the range or on the street. Other major areas of practice include pre-trip inspection, coupling and uncoupling, servicing and maintenance, and maintaining driving record of duty status. All practice takes place under the supervision of a licensed instructor who must provide feedback on correct and incorrect performance.

Range and Street Observation Time

Because practice involves direct interaction with the vehicle, it can accommodate only one (1) student at a time and, since the number of students normally exceeds the number of available vehicles, not all students can practice at the same time. To ensure that learning is taking place, all students shall be required to observe, evaluate, analyze, and critique the performance of other student drivers. The use of checklists to guide and record their activity is required. In addition, instructors shall call frequently upon student observers to point out driver errors and describe the correct course of action. At the end of the observation periods, the instructor shall review and critique the student's observation performance. This is the only way that time allocated to observation can be counted as meeting unit minimum required hour standards.

Problem Solving

Much of classroom activity consists of exercises in which students apply information that they have recently learned to the solution of the problems, including traffic problems. This activity differs from student practice in that it is basically conceptual, paper-pencil exercise rather than hands on experience.

Group Discussion

The instructor's role in group discussions is to:

- Raise issues to trigger discussion
- Provide information to help clarify issues and avoid misconceptions
- Ensure all students have an opportunity to participate.

Minimum Hours of Instruction

Minimum hours of instruction are outlined in each unit syllabus outline. The number indicates the minimum hours required for that unit and instructional settings within the unit.

This curriculum consists of a minimum of 160 hours of student instruction, practice and participation. Of this total, approximately 50 hours are allocated for classroom type instruction, 65 hours of range instruction and practice, and 45 hours of street instruction and driving.

Minimum Driving Requirement

The 45 hours of street instruction is based upon a ratio of three (3) students to one (1) instructor in one (1) vehicle. This time is accumulated through several different units of instruction. With the maximum three-to-one student/instructor ratio each student must receive a minimum of 16 hours of actual BTW time and the balance as observation time.

The 65 hours of range instruction is based upon a maximum ratio of six students to one instructor in one or two vehicles. This time is accumulated through several different units of instruction. With the six-to-one student/instructor ratio each student must receive between 10-16 hours minimum of BTW time and the balance as observation and practice time.

In addition each student must receive a minimum of six hours of BTW time in any combination of street and range. Every student must have a minimum of 32 hours of BTW time as a requirement for initial testing with the KSP examiners.

Classroom Time

Approximately 50 hours of classroom presentation time is allotted to present the topical contents outlined in Units 1-5. A school must maintain a student to instructor ratio of a maximum of 30-to-1. A student that has a CDL permit or CDL license may waive the required hours of unit 1.9, *Commercial Driver License and Permit*, provided that the student is given four hours additional training in units 1.3 through 1.8.

MATERIALS LIST

Each licensed school is **REQUIRED** to make available for student use during training the following:

1. Drivers Record of Duty Status (Logbook). Students must maintain a daily log as part of their training. The completed student driver log sheets are retained as part of their training record.
2. Federal Motor Carriers Safety Regulations Pocketbook containing Parts 40, 382, 390-397, and 399.
3. A current Motor Carriers Road Atlas.
4. Student handouts or learning aids developed by the school for student use.

CURRICULUM UNIT SYLLABI

There are 25 individual curriculum unit syllabi which are grouped into five sections as follows:

- Section 1 – Basic Operation
- Section 2 – Safe Operating Practices
- Section 3 – Advanced Operating Practices
- Section 4 – Vehicle Maintenance
- Section 5 – Non-vehicle Activities

Each curriculum unit syllabus is structured as follows.

- Purpose
- Hours of Instruction
- Instruction Objectives
 - Knowledge
 - Performance/Skill
- Instructional Setting and Materials
 - Classroom
 - Range
 - Street
 - Materials
- Equipment
- Use Reference Sources

SECTION 1 SYLLABI

BASIC OPERATIONS

UNIT 1.1 - ORIENTATION

Purpose

This unit provides an overview of the course content and instructional requirements relating to tractor-trailer driving and student responsibilities.

Hours of Instruction

Each licensed school must devote a minimum of three (3) hours of orientation instruction to school regulations, safety, conduct, performance expectations, and curriculum overview.

Instructional Objectives

Knowledge Objectives

A student must be able to explain/describe:

1. the school's and industry drug testing policy.
2. Kentucky CDL driver license requirements.
3. the school's rules of conduct and minimum requirements for graduation from the course.
4. the safety rules to be observed and followed during range and street instruction.
5. the school's methods for evaluating student performance and meeting the Kentucky curriculum instructional objectives.
6. a disclaimer for promise of a job or obtaining a CDL class A or B license.

Performance Objectives

None for this unit

Instructional Methods and Materials

Classroom

A minimum of three (3) hours of classroom instruction is **required** for presentation of information on course requirements, including range and street safety rules, drug testing policy, financing policy, Board for Proprietary Education compliant procedure, and no guarantee of a CDL A or B license or driving job.

Each student **must** be given a copy of the above information and sign a statement of fact they have received this information. This signed statement is a **critical record** that **must** become part of the student's permanent record.

Range

None

Street

None

Materials

Classroom instruction must be supported materials descriptive of course requirements, including objectives, schedules, school rules and regulations, and drug testing policy. A checklist showing receipt of applicable handout documents should be prepared to document receipt by the student.

Equipment

None

Use Reference Sources

1. Kentucky Commercial Drivers License Manual
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 1 (pp.1 –19)

UNIT 1.2 – CONTROL SYSTEMS

Purpose

This unit introduces students to the function, operation, and meaning of in-cab instruments and controls such as the gauges, gear shift, tachometer, air brake controller, etc. Instructors are responsible to point out controls, instruments and their operation during instruction and demonstration.

Hours of Instruction

Each licensed school must devote a minimum of three (3) hours of instruction in vehicle controls and vehicle system monitoring devices.

Instructional Objectives

Knowledge Objectives

A student must be able to explain/describe:

1. the name, location, and function of each of the vehicle's primary controls including those for steering, accelerating, shifting, braking, and parking.
2. the name, location, and function of each of the secondary controls, including those for the control of vehicle lights, signals, windshield wipers, engine starting and shutdown, suspension, and coupling.
3. the name, location, function and acceptable operating limit or range of the various instruments required to monitor vehicle engine speed, fuel, oil, air, cooling, exhaust, and electrical system status.
4. instrument indications or readings that may provide early warning of a vehicle system malfunction that could endanger the driver and safe vehicle operation.

Performance Objectives

1. Students must be able to identify each of the vehicle driving controls and monitoring devices (gauges, alarms, lights, etc.) required to operate the vehicle safely and effectively.

Instructional Methods and Materials

Classroom

A minimum of one hour of classroom instruction must be spent in classroom instruction on gauges and controls.

Range

At least two (2) hours of “in-cab” instruction and demonstration on gauges and controls which provide “hands-on” explanation of various conditions indicated by the gauges.

Street

None

Materials

Classroom instruction must be supported by appropriate visual aids depicting location, appearance, and proper readings of gauges and controls.

Equipment

None

Use Reference Sources

1. Kentucky Commercial Drivers License Manual
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 3 (pp.57 –74)

UNIT 1.3 – VEHICLE INSPECTIONS

Purpose

This unit introduces students to the importance of systematic vehicle inspections and to develop the knowledge and skills necessary to perform a comprehensive pre-trip vehicle inspection. It is the driver's obligation to public and other road users to ensure his/her vehicle is in safe operating condition before taking it out on the road.

Hours of Instruction

Each licensed school must devote a minimum of ten (10) hours of instruction in systematic vehicle inspection, including inspections regularly performed prior to on-street driving sessions.

Instructional Objectives

Knowledge Objectives

A student must be able to explain/describe:

1. the procedures for a pre-trip inspection as outlined in Section 2 and 11 of the *Kentucky Commercial Driver License Manual*.
2. the effect of undiscovered malfunctions or defective equipment on vehicle and driver safety.
3. Federal, state, and other regulations governing vehicle inspections.
4. the procedure for conducting a post-trip inspection.

Performance Objectives

1. Inspect and determine the condition of critical vehicle components, including instruments and controls; engine and drive train; chassis and suspension; steering system; braking system; tires, wheels, and rims; lighting and signaling system; coupling system; emergency equipment; and cargo securing devices.
2. Perform pre-trip inspections in a systematic sequence that is accurate, uniform and efficient.
3. While operating the vehicle continually check mirrors for signs of problems; monitor instruments for indications of malfunctions; and making periodic roadside inspections of critical components.
4. Successfully perform the pre-trip portion of the CDL license test with a score of 80% or better.

Instructional Methods and Materials

Classroom

A minimum of two hours (2) must be spent in classroom instruction on review of inspection procedures as described in the *Kentucky Commercial Driver License Manual* and/or *PTDI Tractor-Trailer Handbook*, Chapter 2, to include:

- failure recognition,
- use of checklists,
- demonstration of inspection procedures,
- consequences of faulty inspection, and
- discussion of importance of consistent and thorough inspection – pre, enroute, and post trip.

Range

A minimum of eight (8) hours must be allocated to instruction on actual vehicles, including instructor demonstration, student practice, student observation, and evaluation of student performance.

Street

Students should perform a collective total of two (2) or more hours of vehicle inspection prior to regular on-the street training sessions.

Materials

Classroom instruction must be supported by appropriate visual aids that demonstrate characteristics of vehicle malfunctions, their appearance, detection, and adverse consequences. Schools should provide checklist aids for student use.

Equipment

Range vehicle, mock-up and/or simulator of tandem axle tractor and tandem axle trailer appropriate for student practice.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual Section 2 and 11
2. *PTDI Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 2 (pp.21-54)

UNIT 1.4 - BASIC CONTROL

Purpose

This unit provides an introduction to basic vehicle operation. Through instructor demonstration, the students are shown the basics of starting, stopping and backing the vehicle. Students gain initial practice in basic control on yard. Instructors must ensure the student has the basic skills and understanding of how the vehicle operates before any BTW street driving may take place.

Hours of Instruction

Each licensed school must devote a minimum of five (5) hours to instruction in basic control of the vehicle.

Instructional Objectives

Knowledge Objectives

A student must be able to explain/describe:

1. the relationship of wheel base length, articulation, and number of axles to path of a turn.
2. the proper position from which to begin a turn and how to “set up,” execute and recover from a turn.

Performance Objectives

1. Prior to starting the vehicle, ensure the trailer is properly coupled to the tractor.
2. Following vehicle manufacturer’s specifications, start, warm up and shut down the engine.
3. With a running vehicle and instructor assistance, put the vehicle in motion and accelerate smoothly, forward and backward demonstrating proper use of clutch and accelerator.
4. With the vehicle in motion, bring the vehicle to a smooth stop by demonstrating proper modulation of vehicle air brake system.
5. Back the vehicle in a straight line for a minimum of 100 feet demonstrating proper steering coordination .

Instructional Methods and Materials

Classroom

A minimum of one (1) hour of classroom instruction is required to describe basic vehicle controls and demonstration of vehicle turning dynamics.

Range

A total of four (4) hours must be allocated to range instruction during which each student must spend a minimum of two (2) hours in BTW practice. Each practice session must be preceded by instructor demonstration to ensure that students understand the procedures to be practiced. Also, student practice must be continually observed and evaluated by the instructor to ensure that the student is making appropriate progress and to identify and eliminate poor vehicle handling techniques and bad habits.

Street

None

Materials

Classroom instruction must be supported by visual aids and other materials that describe and illustrate turning and maneuvering characteristics of tractor-trailers.

Equipment

All necessary equipment to support range instruction such as traffic cones, barricades, etc.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.2
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 5 (pp.107 – 119)

UNIT 1.5 SHIFTING

Purpose

This unit provides an introduction to basic gear shifting procedures and shift patterns for most common tractor transmissions. Behind-the-wheel practice (BTW) on the range and street shall be provided to develop shifting skills which includes coordination of hands, feet, sight, and hearing.

Hours of Instruction

Each licensed school **must** devote a minimum of three (3) hours to instruction in gear shifting techniques.

Instructional Objectives

Knowledge Objectives

A student must be able to explain/describe:

1. the shifting procedures for the vehicle transmissions trained on.
2. what instruments and controls are necessary to shift gears properly.
3. common shifting errors and consequences that will impact driver safety and vehicle reliability.
4. shifting procedure before starting down a hill and entering a curve.

Performance Objectives

1. While operating the vehicle, the student must be able to shift up and down through all gears of the vehicle's transmission without excessive "gear grinding" or vehicle "coasting" when shifting between gears.
2. While operating the vehicle, the student must be able to select the proper gear for speed and highway conditions.
3. While operating a stopped vehicle, the student must be able to put the vehicle in the proper low gear and resume vehicle motion without stalling out.

Instructional Methods and Materials

Classroom

A minimum of one (1) hour of classroom instruction is required to explain and describe safe and proper procedures for shifting, common vehicle shift patterns, and consequences of shifting errors.

Range and/or Street

A total of two (2) hours of street instruction is required of which each student must have a minimum of one (1) hour of BTW practice in up-shifting and downshifting.

Materials

Classroom instruction must be supported by visual aids and other materials that describe and illustrate shift patterns and procedures.

Equipment

None

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.3
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 6 (pp.122 – 138)

UNIT 1.6 BACKING

Purpose

This unit provides classroom lecture, discussion, and behind-the-wheel practice (BTW) on the methods, concepts, and proper techniques for safely backing a tractor-trailer vehicle.

Hours of Instruction

Each licensed school must devote a minimum of 24 hours to instruction in backing techniques. Each student must have 10 hours of documented BTW time for skill practice and proficiency development.

Instructional Objectives

Knowledge Objectives

A student must be able to explain/describe:

1. the correct procedures for backing and parking.
2. the correct position to place the vehicle before beginning a backing maneuver.
3. the principle(s) of reverse-steering an articulated vehicle.
4. the hazards of backing, the importance of avoiding unnecessary backing and blind-side parking, and the importance of checking the area prior to backing and of using a guide for assistance.

Performance Objectives

1. When operating the vehicle, the student must demonstrate proper coordination of speed, steering, and use of mirrors for clearance determination and trailer position to achieve the desired path while backing.
2. When operating the vehicle, the student must be able to back a straight line for 100 feet minimum without hitting or driving outside the coned backing area. Successful demonstration of proficiency is a score of 80% or better.
3. When operating the vehicle, properly parallel park the vehicle within the established parking area. Successful demonstration of proficiency is a score of 80% or better.
4. While operating the vehicle, perform the offset maneuver and properly back the vehicle into the coned docking area. Successful demonstration of proficiency is a score of 80% or better.

Instructional Methods and Materials

Classroom

A minimum of one (1) hour of classroom instruction is required to explain and describe safe and proper procedures for backing and parking including demonstrations of trailer tracking in reverse.

Yard

A total of 23 hours is allocated for skill and proficiency development on the yard or range, of which each student must have a minimum of 10 hours of BTW documented time.

Street

None

Materials

Classroom instruction must be supported by visual aids such as videos or models that describe backing and parking procedures and demonstrate backing procedures and the path of the trailer in reverse.

Equipment

Traffic cones, barrels, etc. must be available as range aids for parking, backing and docking skills practice.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.2.4 and 6.1.7
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 5 (pp.112 – 113) and Chapter 7 (pp.141-148)

UNIT 1.7 COUPLING AND UNCOUPLING

Purpose

This unit provides students with classroom instruction, demonstration, and performance practice on those steps for safely coupling and uncoupling a tractor-trailer. The instructor shall explain and demonstrate coupling/uncoupling procedure steps and shall supervise student practice for development of skill proficiency.

NOTE: Federal Motor Carrier Safety Regulations require drivers to be trained in the procedures for coupling and uncoupling of the vehicle.

Hours of Instruction

Each licensed school must devote a minimum of four (4) hours to instruction in coupling and uncoupling, including actual coupling and uncoupling performed in connection with range or on-street driving sessions.

Knowledge Objectives

The student must know and be able to explain/describe:

1. The procedure (steps) for proper coupling and uncoupling.
2. The safety hazards associated with improper coupling and uncoupling.

Performance Objectives

1. A student must be able to safely perform a coupling of the tractor to a trailer using the procedure steps as described in the Kentucky Commercial Driver's License Manual.
2. A student must be able to safely perform the uncoupling of the trailer from the tractor using the procedure steps described in the Kentucky Commercial Driver's License Manual.

Instructional Methods

A minimum of one (1) hour of classroom instruction is required to include description and demonstration of coupling and uncoupling procedures and the safety consequences of improper coupling and uncoupling.

A minimum of three (3) hours must be allocated to range/street skill development demonstration and instruction and student practice. Each student must have at least one (1) hour behind the wheel (BTW) practice in coupling and uncoupling, and complete three (3) coupling and uncoupling evolutions.

Materials

Classroom instruction should be supported by visual aids (e.g., videos, models) that demonstrate coupling and uncoupling procedure steps.

Use Reference Sources

1. Kentucky Commercial Driver License Manual, Section 6.4
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, 3rd edition, Chapter 4 (pp.101-102) and Chapter 8 (pp. 151-161)

UNIT 1.8 – PROFICIENCY DEVELOPMENT: BASIC CONTROL

Purpose

This unit is designed to provide the student the time to practice and develop his/her skills in the material introduced in units 1.2 through 1.7.

Hours of Instruction

Each licensed school must devote a minimum of 36 hours to the development of the students' proficiency in vehicle control skills. The required time may be reduced for individual students who meet documented standards, provided the time saved is provided to students failing to meet the standard within allocated hours, as described in the instructional methods section.

Instructional Objectives

Knowledge Objectives

No new objectives

Performance Objectives

1. Using the proper gear setting, start the vehicle moving smoothly.
2. With the vehicle in motion, stop the vehicle smoothly.
3. Start the vehicle, and place the vehicle in motion backward in a straight line.
4. While operating the vehicle, demonstrate proper gear shifting, throttling, engine speed and clutch use for moving the vehicle forward and backward.
5. While operating the vehicle, demonstrate use of vision and mirrors to judge front, rear and side clearances.

Instructional Methods and Materials

Classroom

None.

Range

A minimum of 12 of the 36 hours must be allocated to BTW practice and skill development. The remaining hours are to be spent in instruction and student observations.

Street

A total of ten (10) hours must be allocated to on-the street instruction of basic vehicle operational control. Students must have a minimum of six (6) hours BTW practice in a combination of low and moderate density traffic.

Materials

None

Equipment

Properly licensed and Kentucky State Police approved tractor-trailer combination vehicle.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*

UNIT 1.9– COMMERICAL DRIVER PERMIT & LICENSE

Purpose

This unit is designed to provide the student instruction on the requirements to obtain a Kentucky CDL Drivers License and the knowledge requirements to pass the written test to obtain their CDL permit.

Hours of Instruction

Each licensed school must devote a minimum of 10 hours of instruction on the laws, regulations, testing and conditions for obtaining a Kentucky CDL permit and license.

NOTE: A student who already has his or her CDL permit may waive up to six (6) hours of this section provided the student is given four (4) hours additional training within Units 1.3 through 1.8.

Instructional Objectives

Knowledge Objectives

1. The student shall have the necessary knowledge to pass the CDL written test to obtain his/her CDL permit on the first attempt.

Performance Objectives

None

Instructional Methods and Materials

Classroom

A minimum of ten (10) hours of instruction shall be provided to include the following:

- KY laws and regulations relating to obtaining a class A CDL license.
- CDL testing procedures.
- General knowledge, combination vehicles, and air brake portions of the CDL permit test.

Range

None

Street

None.

Materials

Classroom instruction must be supported by materials descriptive of KY CDL requirements, and should include the current KY CDL driver license manual, PTDI handbook/workbook, and other aids, forms, etc.

Equipment

None.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Sections 1, 2, 3, 5, 6, 11, 12, 13
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*

SECTION 2 SYLLABI

SAFE OPERATING PRACTICES

UNIT 2.1– VISUAL SEARCH

Purpose

This unit provides the student instruction and practice on the principles of visual search, use of mirrors and practice in use of visual search techniques while driving the vehicle.

Hours of Instruction

Each licensed school must devote a minimum of five (5) hours of instruction on visual search (use of mirrors) techniques.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the proper adjustments that can be made to various types of vehicle mirrors.
2. the differences in images presented by flat and convex mirrors.
3. the importance of making all visual checks to the sides and rear of the vehicle and quick visual checks of the mirrors to limit the amount of time a driver's eyes are off the road ahead.
4. the relationship between speed, sight distance and road conditions for visual scanning.
5. Appropriate search patterns appropriate for straight driving, changing speed or direction, and entering or crossing traffic.
6. why mirrors will not reveal every potential or actual hazard.

Performance Objectives

1. While operating the vehicle, the student shall perform appropriate visual scanning techniques for safe vehicle operation that will include:
 - a. Scanning both sides of the road using quick glances to observe roadside activity and positioning of adjacent vehicles, especially those that may be overtaking or passing and entering the vehicle's rear and blind spots.
 - b. Using a visual scanning pattern that employs frequent checking of all mirrors for hazards.
 - c. Making appropriate visual checks for changing speeds, direction or lanes.
 - d. Frequent checks of the vehicle instrument panel.
 - e. Looking ahead as far as possible during turns and on curves.
 - f. Avoiding diverting attention from the vehicle's travel path longer than one (1) second at a time.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that include descriptions of appropriate visual search patterns, field of view, and a description of the danger of failing to employ proper visual scanning or search procedures while driving.

Range

One (1) hour must be spent on the range in instruction on proper use of vehicle mirrors including how to adjust them to accommodate the driver's field of view.

Street

Three (3) hours of the minimum 16 hours of BTW driving time must be allocated for instruction, observation and commentary of the student's visual search pattern techniques.

Materials

Classroom instruction must be supported by materials that describe search pattern procedures and demonstrate proper search pattern techniques for safe vehicle operation and the avoidance of hazards or accidents.

Equipment

A licensed and KSP approved vehicle with appropriate mirror configuration.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.4
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 14, (pp. 234-243)

UNIT 2.2 - COMMUNICATION

Purpose

This unit provides the student instruction and driving practice on communication, e.g., turn signals, use of horn, etc. to other drivers traveling the roadway.

Hours of Instruction

Each licensed school must devote a minimum of three (3) hours of instruction on signaling your intentions and communicating your presence to other vehicles.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe:

1. when to use turn signals to provide adequate warning to other vehicles.
2. current traffic laws regarding turn signal use.
3. the importance of signaling to the prevention of accidents and avoidance of traffic violation tickets/convictions.
4. why you should not give signals that could lead to the assumption of liability, e.g., signaling drivers when it's OK to pass.
5. the importance of using the vehicle horn for warning purposes only.
6. conditions under which other drivers may give false signals.

Performance Objectives

1. While operating the vehicle, the student shall perform appropriate signaling techniques for safe vehicle operation that will include:
 - a. Signal intention to change position before pulling onto or off the road or changing lanes.
 - b. Canceling turn signals after the trailer is around the corner and straightened out.
 - c. Flash break lights to warn following drivers that tractor-trailer is slowing or stopping.
 - d. Use four-way flashers according to Kentucky state law.
 - e. Use headlights in daytime when raining, foggy, or other low visibility conditions.
 - f. Avoid entering the path of other vehicles on the basis of a signal.
 - g. Use horn to warn other vehicles of your presence to avoid collision.
 - h. Maintaining proper vehicle position so other drivers are aware of your presence.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that include discussion of appropriate communication procedures, the hazards of improper communication, and exercises in proper communication techniques.

Range

None.

Street

Two (2) hours of street instruction is required of which one (1) hours of the minimum 16 hours of BTW driving time must be allocated for instruction, observation and commentary of the student's communication techniques to other vehicles on the roadway, and commentary of the signaling habits of other road users.

Materials

Classroom instruction must be supported by materials that describe or illustrate proper communication procedures and the consequences of improper communication and that provide situations for classroom exercises. In vehicle materials should include instructor checklists to rate student performance.

Equipment

A licensed and KSP approved vehicle for over-the-road operation.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.5
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 12, (pp. 212-220)

UNIT 2.3 – SPEED MANAGEMENT

Purpose

This unit provides the student instruction and driving practice on speed management principles, e.g., maintaining safe speed while operating the vehicle under various road and surface conditions, stopping conditions, roadway work zones and speed on downgrades.

Hours of Instruction

Each licensed school must devote a minimum of two (2) hours of instruction on speed management principles.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe:

1. the relationship of speed to stopping distance, hydroplaning, crash severity, ability to maneuver and fuel economy.
2. the effect on maximum safe speed of vehicle weight, center of gravity, loss of stability, available sight distance, and road surface conditions.
3. the effect of excessive speed for the conditions on ability to safely operate the vehicle.

Performance Objectives

1. While operating the vehicle, the student shall maintain and obey the legal speed limit.
2. While operating the vehicle, the student demonstrated proper driving skill to adjust to the configuration and condition of the roadway, weather and windage, visibility, and traffic conditions.
3. While operating the vehicle, demonstrate proper technique for entering a curve.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that discusses speed management in relation to stopping distance, matching speed to road surface and traffic conditions and speed for curves and downgrades.

Range

None.

Street

During the student's BTW driving, the instructor will monitor student's speed throughout driving sessions and will correct students when they are driving too fast for the conditions.

Materials

Classroom instruction must be supported by materials that describe or illustrate proper speed management techniques, skills and knowledge. .

Equipment

A licensed and KSP approved vehicle for over-the-road operation.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.6
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 15, (pp. 245-256)

UNIT 2.4 – SPACE MANAGEMENT

Purpose

This unit provides the student instruction and driving practice on in space management techniques

Hours of Instruction

Each licensed school must devote a minimum of three hours (3) of instruction on space management principles.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe:

1. Kentucky regulations concerning commercial vehicle following distances, lane use, changing lanes, and passing other vehicles.
2. the appropriate following distance for various conditions and to avoid accidents.
3. the importance of maintaining maximum separation from other vehicles to ensure room to maneuver in response to errors of other drivers.
4. the dangers created by overhead obstructions.

Performance Objectives

1. While operating the vehicle, the student shall demonstrate the ability to judge adequacy of space management for passing, crossing and entering traffic and changing lanes.
2. While operating the vehicle, maintain proper following distance appropriate to traffic load, road surface, visibility, and vehicle weight.
3. While operating the vehicle, position the vehicle to properly complete a turn and to minimize encroachment on other lanes.
4. While operating the vehicle, assure a safe gap before change lanes, passing other vehicles, and crossing or entering traffic.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that discusses space management relating to spaces ahead, behind, to the side and overhead of the vehicle and space required for turns and entering or crossing traffic.

Range

None.

Street

During the student's BTW driving time, the instructor will allocate a minimum of two (2) hours to monitor and coach the student on space management techniques and skills.

Materials

Classroom and driving instruction must be supported by materials that describe or illustrate proper space management techniques, skills and knowledge. A checklist may be used to document space management BTW skills.

Equipment

A licensed and KSP approved vehicle for over-the-road driving.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.7
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 13, (pp. 222-232)

UNIT 2.5 – NIGHT OPERATION

Purpose

This unit provides the student instruction and driving practice on inspection, preparation, and actual night driving operation.

Hours of Instruction

Each licensed school must devote a minimum of 11 hours of instruction in night operation principles.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe:

1. The effect of the level of illumination on the driver's ability to see and operate the vehicle safely.
2. Principles and techniques of safe night time driving factors to include:
 - a. Vision
 - b. Glare
 - c. Alertness and fatigue
 - d. Drunk drivers
 - e. Poor lighting
 - f. Proper use of headlights
 - g. Proper functioning brake and signal lights

Performance Objectives

1. While operating the vehicle, the student shall demonstrate the ability to adjust speed, following distance and spacing.
2. While operating the vehicle, demonstrate proper, legal use of vehicle high headlight beams and dimming headlights to minimize visibility with other drivers.
3. While operating the vehicle, demonstrate proper eye (visual scanning) movements to minimize glare from other vehicles.
4. Demonstrate proper use of other vehicle auxiliary lighting.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that discusses changes in driving procedures when driving at night versus during the day.

Range

Up to three (3) hours of instruction must be provided with each student having a minimum of one (1) hour of BTW practice in basic vehicle maneuvers and inspecting the vehicle using a flashlight or other similar light.

Street

A **total** of seven (7) hours is required, of which two (2) hours of BTW driving time must be allotted for practicing night driving skills.

Materials

Classroom and driving instruction must be supported by materials that describe or illustrate night driving procedures, techniques, skills and knowledge. The student driving checklist and driver's log are used to document night driving requirements.

Equipment

Flashlights, penlights, etc. for performance of night time vehicle inspections. A licensed and KSP approved vehicle for over-the-road driving.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.11
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 16, (pp. 257-266)

UNIT 2.6 – EXTREME DRIVING CONDITIONS

Purpose

This unit provides the student instruction basic instruction on the safety principles and techniques on driving in extreme conditions such as hot or cold weather, fog or stormy conditions, railroad crossings, and mountains.

Hours of Instruction

Each licensed school must devote a minimum of one (1) hour of instruction on extreme driving conditions.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe:

1. The effect of rain, snow, ice on the ability to safety maneuver and stop the vehicle.
2. The causes and procedures for avoiding skidding and jack-knifing.
3. Vehicle preparations the driver may be required to perform for operation in cold weather.
4. The procedure to ensure moisture is expelled from the air tanks after each trip.
5. How to assure safe operation of vehicle brakes after driving through deep water.
6. How to start the engine in cold weather.
7. The effect of ice, snow, water, mud, and debris on operation of vehicle braking system.
8. How to extricate the vehicle from snow, sand, and/or mud by maneuvering or towing.

Performance Objectives

1. While operating the vehicle, the student shall demonstrate the ability to use windshield wipers and defroster (winter months).
2. While operating the vehicle during adverse weather conditions (rain, fog, snow, etc.) provide commentary to the instructor and observers what to look for in road surface condition changes.
3. IF operating the vehicle during adverse weather conditions, demonstrate and provide commentary to instructor regarding speed selection, braking, following distance, etc. required to maintain safe control of the vehicle and to avoid jack-knifing.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that includes information on hazards presented by extreme or adverse weather conditions, procedures for handling extreme conditions, and consequences of improper gear position on downgrades.

Range

None.

Street

Incorporate knowledge and performance skills as part of street driving BTW hours.

Materials

Classroom and driving instruction must be supported by materials that describe or illustrate proper driving techniques and procedures for adverse or extreme weather conditions.

Equipment

None

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.12-2.16
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 17, (pp. 268-288)

UNIT 2.7 – PROFICIENCY DEVELOPMENT: SAFE OPERATION

Purpose

This unit provides the student opportunity to practice and develop, with BTW driving and observation periods, the vehicle handling skills learned in unit 1.4, *Basic Control*, 1.5, *Shifting*, 1.8, *Proficiency Development-Basic Control*, and the safe operating practices learned in units 2.1 through 2.6. Instructors shall monitor and document student performance for performing basic highway traffic maneuvers of lane changing, passing, merging, turning and parking using appropriate driving procedures.

Hours of Instruction

Each licensed school must devote a minimum of 24 hours of instruction of student instruction, BTW practice and structured observation and critique in safe operating procedures.

Instructional Objectives

Knowledge Objectives

No new objectives for this unit.

Performance Objectives

No new objectives for this unit

Equipment

None

Use Reference Sources

None

SECTION 3 SYLLABI

ADVANCE OPERATING PRACTICES

UNIT 3.1 – HAZARD PERCEPTION

Purpose

This unit provides the student instruction and street practice on the principles of recognizing potential hazards early enough to prevent them from becoming emergencies. BTW driving and observations are to include application of hazard recognition principles.

Hours of Instruction

Each licensed school must devote a minimum of seven (7) hours of instruction on hazard perception techniques and awareness.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the visible characteristics of road conditions that present a hazard to safe operation, e.g., slippery, soft, sloping, or uneven surfaces, road debris, visibility obstructions, and areas of strong crosswinds.
2. the actions by other road users that may make them potentially dangerous, e.g., impatience, road rage, cell phone usage, low speed, driving in your blind spots, etc.
3. the types of railway crossings, warning signs and devices, and hazards associated with crossings.

Performance Objectives

1. While operating the vehicle, the student shall be able to identify to the instructor road conditions and road users that are a potential threat to the safety of the vehicle.
2. Students must perceive immediately a potential threat by the visible characteristics and actions of other road users and initiate prompt defensive or evasive action.
3. Demonstrate proper driving procedure for crossing railways.

Instructional Methods and Materials

Classroom

A minimum one (1) hour of instruction shall be provided that include descriptions of hazards and hazard recognition, safety conscious driving, and hazardous driving case problems.

Range

None

Street

Six (6) hours total of student observation and commentary and two (2) hours of BTW time which exposes the student to heavy, fast moving traffic.

Materials

Classroom instruction must be supported by materials and visual aids from the driver point of view the hazards most commonly encountered. Also, required are printed or visual materials that describe common hazards and the frequency which they're encountered.

Equipment

A licensed and KSP approved vehicle for BTW driving skill development.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.15 and 2.17
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 19, (pp. 304-319) and Chapter 20, (pp.320-331)

UNIT 3.2 – EMERGENCY MANEUVERS

Purpose

This unit provides the student instruction on emergency braking techniques, evasive actions and responses to other emergencies.

Hours of Instruction

Each licensed school must devote a minimum of five (5) hours of instruction in emergency maneuvers, including brake failures, front wheel tire blowout, emergency stops, and evasive maneuvers.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the procedures for quick stops, quick turns, and evasive turns off the roadway.
2. the recommended procedure to following if stopped by an enforcement agency.
3. the procedure to employ to yield right of way for emergency vehicles.
4. why it is preferable to leave the road versus risk a head-on collision with another vehicle.
5. the proper steps to maintain vehicle control and bring the vehicle to a safe stop in the of a brake failure and tire blowout.

Performance Objectives

1. While operating the vehicle, the student shall bring the truck to a safe stop in the shortest possible while maintaining directional control on a dry road surface.

Instructional Methods and Materials

Classroom

A minimum two (2) hours of instruction shall be provided that include descriptions, case study and problems, and simulation demonstrations of emergency procedures

Range

None

Street

Three (3) hours total of student observation and commentary by the instructor discussing and posing case scenarios to develop student awareness of proper emergency response actions.

Materials

Classroom instruction must be supported by materials and visual aids from the driver point of view that demonstrate emergency maneuvers and recovery procedures.

Equipment

A licensed and KSP approved vehicle for BTW driving skill development.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 2.17 through 2.19
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 18, (pp. 291-302) and Chapter 21, (pp.333-345)

SECTION 4 SYLLABI

VEHICLE MAINTENANCE

UNIT 4.1 – VEHICLE SYSTEMS

Purpose

This unit provides the student instruction on function and operation of all key vehicle systems, e.g., engine, engine auxiliary systems, brakes, drive train, coupling systems, suspension, etc. for safe and efficient vehicle operating condition.

Hours of Instruction

Each licensed school must devote a minimum of three (3) hours of instruction in vehicle operating systems and components.

Instructional Objectives

Knowledge Objectives

1. The student must be able to explain/describe the location, function, operation and common failures of the following vehicle components:
 - Frame, suspension and axle systems
 - Engine
 - Fuel system
 - Air intake and exhaust system
 - Lubrication system
 - Cooling system
 - Electrical System
 - Drive train
 - Braking system
 - Wheels, Bearing, Rims, and Tires
 - Steering system
 - Coupling system

Performance Objectives

1. Apply vehicle system and component knowledge during pre-trip inspection practice sessions and score 80 percent or better on practice tests.

Instructional Methods and Materials

Classroom

A minimum three (3) hours of instruction shall be provided that include descriptions, location, function and operation of vehicle system components.

Range

None

Street

None

Materials

Classroom instruction must be supported by materials and visual aids that describe and illustrate the location, function, and operation of vehicle components. Dynamic visuals, DVDs, video tapes, simulations, etc. that demonstrate internal operation of applicable components is recommended.

Equipment

A range vehicle and trailer for pre-trip inspection and hands-on identification of vehicle components.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual, Section 5
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 4, (pp. 76-103)

UNIT 4.2 – PREVENTIVE MAINTENANCE AND SERVICING

Purpose

This unit provides the student instruction on basic vehicle servicing tasks including checking engine fluids, changing fuses, checking tire inflation, draining air tanks, etc. and applicable FMCSA Part 396.

Hours of Instruction

Each licensed school must devote a minimum of three (3) hours of instruction and application in basic vehicle inspection and preventive maintenance measures.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the procedures a driver should use for performing inspections and minor maintenance and repairs they can perform and do so safely.
2. the importance of periodic inspections and routine preventive maintenance.
3. driver requirements/responsibilities for inspection, repair and maintenance under FMCSA regulations (Part 396).
4. driver responsibility to ensure the vehicle is in a safe operating condition and what to do if it is not.

Performance Objectives

1. Using a functioning range or street tractor-trailer vehicle, check engine fuel, oil, coolant, battery and filters for proper operating levels or condition.
2. Using a functioning range or street tractor-trailer vehicle, check tire pressure levels for proper pressure.
3. Using a functioning range or street tractor-trailer vehicle, check for proper tire and wheel mounting.
4. Using a functioning range or street tractor-trailer vehicle, demonstrate or simulate the proper procedure for draining moisture from air brake supply reservoirs and fuel systems.

Instructional Methods and Materials

Classroom

A minimum of one (1) hour of instruction shall be in the importance of preventive maintenance and servicing for the prevention of breakdowns, safe vehicle operation, and increasing life of vehicle systems.

Range

A minimum of two (2) hours of range instruction and student practice (1 hour each) to demonstrate preventive maintenance and servicing performance objective requirements.

Street

None

Materials

Classroom instruction must be supported by materials and visual aids, e.g., examples of preventive maintenance checklists, maintenance schedules, repair orders.

Equipment

A range vehicle for practice and performance of preventive maintenance and servicing skill sets.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 10 (pp. 177-191)

UNIT 4.3 – DIAGNOSING AND REPORTING MALFUNCTIONS

Purpose

This unit provides the student instruction on identification and response to vehicle malfunctions and practice in performing emergency starting procedures.

Hours of Instruction

Each licensed school must devote a minimum of two (2) hours of instruction and application in basic vehicle servicing and preventive maintenance.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the signs and symptoms of impending vehicle malfunction as may be indicated by vehicle instruments, vehicle operating characteristics, sight, sound, feel, and/or smell.
2. the danger of exceeding vehicle maintenance restrictions as imposed by the employer or vehicle manufacturer.

Performance Objectives

1. Using a simulated vehicle malfunction scenario provided by the instructor, analyze and correctly identify the vehicle system(s) and/or component(s) that are, or may be, the cause of the vehicle malfunction.
2. Demonstrate or simulate the proper procedure to start a vehicle with a dead battery and/or without air pressure (if equipped with air starters).
3. Demonstrate the proper procedure for reporting breakdowns occurring enroute.

Instructional Methods and Materials

Classroom

A minimum of one (1) hour of instruction shall provided on how to diagnose and recognize common vehicle malfunctions and how to communicate the problem to service personnel.

NOTE: Students are not expected to become mechanical experts; however, they should have a basic understanding of common vehicle malfunctions to communicate the problem they've experienced to service personnel.

Range

A minimum of one (1) hour of range instruction and practice to diagnose vehicle malfunction scenarios provided by the instructor.

Street

None

Materials

Classroom instruction must be supported by materials and visual aids, e.g., troubleshooting charts, to describe and illustrate symptoms of common vehicle malfunctions.

Equipment

A range vehicle for practice and performance of malfunction diagnosis scenarios.

Use Reference Sources

1. Kentucky Commercial Drivers License Manual
2. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 11 (pp. 193-210)

SECTION 5 SYLLABI

NON-DRIVING ACTIVITIES

UNIT 5.1 – HOURS OF SERVICE REQUIREMENTS

Purpose

This unit provides the student instruction on permissible hours of on duty driving, rest periods, and other requirements of Federal Hours of Service Regulations. Students gain practice in use and completion of driver's duty status record of time.

Hours of Instruction

Each licensed school must devote a minimum of four (4) hours to instruction in FMCSA, Part 395, *Hours of Service Regulations*, for drivers.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the requirements of Part 395 of the FMCSA for hours of service.
2. the procedure for completing their driver's duty status record.
3. the procedure for using the recap.
4. the legal and safety consequences of failure to comply with Hours of Service Regulations.

Performance Objectives

1. Using their student logbook, maintain a complete, neat and accurate driver's log of hours on duty – non-driving, hours driving (BTW), and hours off-duty.
2. Using their student logbook, perform arithmetic calculations to recap and apply totals to Hours of Service Regulation and complete applicable recap/summary pages of their logbook.
3. When performing street driving activities, have their logbook with them and up-to-date through prior day activities.

Instructional Methods and Materials

Classroom

A minimum of four (4) hours of instruction shall be provided on FMCSA hours of service regulations and procedures, demonstration driver logkeeping procedure, and practice exercise(s) by the students in completing logs based on case scenario(s) provided by the instructor.

Range and Street

Students shall be required to keep accurate and up-to-date logbooks of all activities for the remainder of their training course or for 30 days, whichever comes first. This unit should be scheduled early enough (first week of training) to permit use of logs by students to record their range and street practice BTW practice and observation times. Upon course completion and graduation or dropping out of the program, the student driving log must be maintained as part of the student's permanent record.

Student logbooks are subject to review by Kentucky law enforcement agencies and KPE board inspector.

Materials

Classroom instruction must be supported by materials and visual aids adequate to present the required information on Hours of Service regulations and proper procedure to maintain logbooks, correctly and accurately. Each student must have a logbook to complete for the remaining course of instruction.

Equipment

None.

Use Reference Sources

1. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 27 (pp. 446-459)
2. FMCSA, Part 395, *Hours of Service Regulations*

UNIT 5.2 – ACCIDENT PROCEDURES

Purpose

This unit provides the student instruction on basic procedures to follow for handling the scene of an accident, reporting accidents, rules and regulations related to accidents. Also, included is instruction in use of vehicle fire extinguisher and fire fighting techniques related to truck fires.

Hours of Instruction

Each licensed school must devote a minimum of two (2) hours to instruction in accident and emergency procedures.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. applicable Kentucky state law dealing with stopping and rendering assistance at the scene of an accident.
2. fundamental procedure for protecting the scene of an accident.
3. information that needed for accident reporting.
4. type of fire extinguisher appropriate for each class of fire.
5. how to extinguish engine, electrical or tire fires.
6. proper procedure to stop the vehicle in event of a fire.
7. the importance of avoiding discussing legal questions at the accident scene.
8. when first-aid should be provided by the driver to injured parties.

Performance Objectives

None

Instructional Methods and Materials

Classroom

Two (2) hours of instruction shall be provided on accident procedures, fire prevention and fire fighting.

Range and Street

None

Materials

Classroom instruction must be supported by materials and visual aids adequate to present the required information for accident prevention, response and vehicle fire fighting.

Equipment

None.

Use Reference Sources

1. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 22 (pp. 346-363)
2. Kentucky Commercial Driver License Manual, Section 2.20 and 2.21.

UNIT 5.3 – PERSONAL HEALTH AND SAFETY

Purpose

This unit provides the student instruction on physical requirements for driving an interstate vehicle, medical examination and certification. Topics discussed include health maintenance (wellness), diet, exercise, alcohol and drug use effects, and fatigue avoidance. Common personal protective equipment (PPE) and vehicle safety equipment are also identified and discussed.

Hours of Instruction

Each licensed school **must** devote a minimum of two (2) hours of instruction in personal health and safety.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the effects of alcohol, drugs, poor diet, fatigue and poor hearing or vision on safe vehicle operation.
2. the importance and legal requirements for seat belt use when operating the vehicle.
3. the importance of staying with a disabled vehicle when stranded during adverse weather conditions.
4. Federal regulations governing physical fitness requirements.
5. proper techniques to employ to avoid unsafe situations that might result in robbery, hijacking, or pilferage.
6. safe lifting procedures.
7. potential safety hazards associated with driving tired or fatigued.

Performance Objectives

1. When operating the vehicle on the street, demonstrate proper use of seat belt and other vehicle safety devices.
2. While operating the vehicle, perform an emergency stop and describe the procedures for securing the vehicle.

Instructional Methods and Materials

Classroom

Two (2) hours of instruction shall be provided on information relative to maintaining driver health and physical condition, ways to avoid on-the-job injuries, effects of drugs

and alcohol on ability to drive and maintain holding a CDL license, use of applicable personal protective equipment, and federal regulations pertaining to drivers physical condition.

Range and Street

None

Materials

Classroom instruction must be supported by materials and visual aids adequate to present the required information for ensuring driver health and safety and hazards recognition to driver safety and health.

Equipment

Examples of applicable safety equipment/PPE.

Use Reference Sources

1. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 31 (pp. 503-528)
2. Kentucky Commercial Driver License Manual, Section 2.22 and 2.23.

UNIT 5.4 – TRIP PLANNING

Purpose

This unit provides the student instruction on the importance and requirements for planning trip, Federal and State requirements for permits, vehicle weight and size limitations, etc. Students perform practical exercise in trip planning.

Hours of Instruction

Each licensed school **must** devote a minimum of four (4) hours of instruction to trip planning techniques and practical exercise.

Instructional Objectives

Knowledge Objectives

The student must be able to explain/describe correctly:

1. the types of vehicles, cargos, and routes requiring special permits.
2. procedures for route planning, preparing paper work, route selection, and estimating time, fuel, money and personal needs.
3. common Kentucky law restrictions on vehicle size and weight.

Performance Objectives

1. Given a trip scenario by the instructor, properly plan the route that is optimal in terms of travel time, layovers, fuel consumption and costs, potential hazards, and any tractor-trailer travel restrictions.
2. Given a highway map, correctly identify and explain common map symbols and distance ratio (e.g. 1":50 mi).

Instructional Methods and Materials

Classroom

Four (4) hours of instruction shall be provided on information relative to the most effective and efficient routing between pickup and delivery points, or start and destination with minimum safety risks and compliance with applicable regulations for commercial vehicle traffic. The consequence of inefficiency and additional safety risks to properly plan routes is also discussed.

Range and Street

None

Materials

Classroom instruction must be supported by materials, current maps/Motor Carriers Road Atlas and other visual aids adequate to present the required information for trip planning and performing in-class trip planning exercise(s).

Equipment

None

Use Reference Sources

1. PTDI *Tractor-Trailer Driver Handbook/Workbook*, Chapter 25 (pp. 414-428) and Chapter 26 (pp. 430-444)